

1965

Student Attitudes Toward the Printing Industry in Two Chicago Area High Schools

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STUDENT ATTITUDES TOWARD THE PRINTING INDUSTRY
IN TWO CHICAGO AREA HIGH SCHOOLS

BY

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A thesis submitted
in partial fulfillment of the requirements for the
degree Master of Science, Major in
Printing Management, South Dakota
State University

1965

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IN TWO CHICAGO AREA HIGH SCHOOLS

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable as meeting the thesis requirements for this degree; but without implying that the conclusions reached by the candidate are necessarily the conclusions of the major department.

Thesis Adviser

Date

Head of the Major Department

Date

ACKNOWLEDGEMENTS

The author wishes to express his sincere appreciation to Professor J. K. Hvistendahl of the department of Printing and Journalism for his kind encouragement and guidance during the preparation of this thesis.

My appreciation is also extended to Dr. W. L. Tucker, the South Dakota Experiment Station statistician, for his assistance in statistical matters.

The author would also like to express his indebtedness to Mr. Harold Johnson of Willowbrook High School and Mr. Emil Roethe of Lane Technical High School for their invaluable assistance in administering the scale.

My appreciation is also extended to Jock Wilson and Charles Ridgeway for their readings of this thesis and to Al Leicht for printing the scale and questionnaire attachments.

Lastly, he would like to thank his parents, for their financial as well as psychological support.

FAO

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CHAPTER I

INTRODUCTION

Importance of Measuring Attitudes

Before considering the importance of attitudinal measurement it would be helpful to define what an attitude is and subsequently how this definition relates to the measurement of attitudes.

Rosenberg and others delineate attitude in the following way:

Attitudes are typically defined as "predispositions to respond in a particular way toward a specific class of objects." Being predispositions, they are not directly observable or measureable. Instead they are inferred from the way we react to certain stimuli. Saying that a man has an unfavorable attitude toward foreigners leads us to expect that he will perceive their actions with distrust, will have strong negative feelings toward them, and will tend to avoid them socially. Thus when attitudes are studied, what are observed are the evoking stimuli on the one hand and the various types of response on the other (19-1).

Expanding these principles to attitude measurement Sherif and Hovland noted:

Attitude measurement, whether the indices are overt behavior or, more typically, check marks on an attitude questionnaire, is based upon evaluations and categorization of the stimulus toward which the attitude is held. Thus stimulus conditions, internalized anchors, motivation, prior learning, and a host of other factors affect the response obtained in the measurement. (21-1)

Ingles, after an intensive investigation concerning the fruitfulness of teaching history, concluded that the attitudes developed through the study of history are probably considerably more important than the specific knowledges that the student has

acquired during his training (9). The implications from his rather generalized interpretations are of unlimited importance. If the student acquires all of the skills required to be successful in his chosen profession but he does not develop a favorable attitude toward that profession, he probably will sink into the "depths of repetition."

Another reason why attitudinal measurement is important concerns the effects which attitudes have on the learning process. In his article "Attitude's Affect Pupil's Learning," Mill noted:

At the 1950 White House Conference on children and youth, William Heard Kilpatrick made a point with a memorable illustration. In talking about "what do pupils learn?" he referred to the way that most of us were taught to go to church. Whether we wanted to or not, every Sunday, and sometimes oftener we had to dress up and go to a church. It was usually the idea of our parents that if we developed early habits of going to church these habits would stay with us for the rest of our lives.

But did we really learn to go to church? In fact, many of us learned just the opposite. We went to church while we were children because we were forced to, but as soon as we became old enough to have some control over our own behavior we stopped going to church. For many of us it was not until much later when we had rethought through the whole matter that we determined for ourselves whether or not we would be regular church goers.

As Dr. Kilpatrick said, "A child can be forced to do on the outside because we are bigger and stronger than he is, but for effective learning we want to reach the child on the inside." In other words, we must have an effect on his attitudes toward what we teach if we want other techniques of instruction to take effect. (12-212)

Learning takes place only when information is transmitted into the intellectual framework of the individual. If certain attitudes act as barriers to this integration of information,

learning cannot take place. Take, for example, the beginning student in printing who has for one reason or another developed a malignant attitude toward the Ludlow. His training proceeds splendidly until it comes time for him to learn how to operate this machine. The student immediately sets up a psychological block and refuses to learn its operating procedures. Idashkin has empirically shown that attitude position is significantly related to what items of information a person will accept into his intellectual framework (8).

Still another reason for measuring student attitudes concerns the importance of meaningful vocational and educational guidance (2). If the teacher can identify the factors in the student's personal and environmental background that are significantly related to the student's desire to remain in printing, he can much more effectively develop an individualized course of study. The teacher is then better prepared to give meaningful vocational and educational guidance. Related to this is the importance of cultivating a favorable attitude toward printing on the part of the student while he is still in school. This cannot be overemphasized since Tenen (23) found that if youths failed to develop favorable attitudes towards a vocational goal while still in school, they tended to drop out. The student then enters the work force in a random vocation which causes him to experience disillusionment and resentment after a short period of time.

A final reason for the importance of vocational attitudinal measurement concerns the social problem of mental illness of the aged. It is a common known fact that psychic equilibrium in older age is in part related to the amount of vocational interest the person has experienced in his life's work (16). In other words, the individual who enters the vocation for which he has favorable attitudes could be expected to be less frustrated about his work. This in turn would make a satisfactory adjustment to life a greater possibility.

Reasons for Undertaking the Study

The purpose of this study was four fold: (1) to determine if the attitude scale developed by Melvin (11) to measure attitudes toward the printing industry could be applied to an educational setting; (2) to ascertain if printing students with the most favorable attitudes toward the printing industry expect to stay within the realm of printing after they graduate; (3) to see if attitudes toward the printing industry are significantly related to the reasons that a student chose printing as an academic pursuit; (4) and to determine if attitudes toward the printing industry are significantly related to various other demographic data.

Since the attitude scale, developed by Melvin, was originally validated on commercial printers, it is essential to ascertain if the scale will differentiate the printing student from the non-printing student. Common sense would seem to indicate that the

printing student's attitude would be more favorable to the printing industry than the non-printing student's attitude, but empirical data is necessary to substantiate this proposition. If it can be shown that the test distinguishes between the printing and the non-printing student and if the scale differentiates between those who plan to enter printing from those who do not, the usefulness of Melvin's scale would be greatly enhanced.

Summary of Scale Construction Using Thurstone's Method of Equal- Appearing Intervals

Before continuing, it would seem necessary to consider the type of attitude scale that was employed in this study. An understanding of this method with some of its inherent limitations can best be related by presenting Thurstone's own "Summary of the Measurement Method":

We have tried to devise a method whereby the distribution of attitude of a group on a specified issue may be represented in the form of a frequency distribution. The base line represents ideally the whole range of attitudes from those at one end who are most strongly in favor of the issue to those at the other end of the scale who are as strongly against it. Somewhere between the two extremes on the base line will be a neutral zone representing in-different attitudes on the issue in question. The ordinates of the frequency distribution indicate the relative popularity of each attitude. This measurement problem has the limitation which is common to all measurement, namely, that one can measure only such attributes as can be represented on a linear continuum

The opinions are allocated to different positions on the base line in accordance with the attitudes which they express. The ordinates of the frequency distribution are determined by the frequency with which each of the scaled opinions is endorsed. The center of the whole problem lies

in the definition of a unit of measurement for the base line. The scale is so constructed that two opinions separated by a unit distance on the base line seem to differ as much in the attitude variable involved as any other two opinions on the scale which are also separated by a unit distance. This is the main idea of the present scale construction

We are not at all sure that the method that we have used is theoretically correct or that it is the best psychophysical method of measuring attitude. It is possible that the method of equal-appearing intervals . . . may be superseded by better psychophysical methods. Our main purpose will have been achieved, however, if we succeed in directing attention to the possibility of measuring attitude as a psychophysical problem (25-x1)

After a brief chronological summary of the procedures used by Melvin, in the development of the scale, the reader will perhaps have a more lucid understanding of the method of equal-appearing intervals.

A large list of opinions about the printing industry were written down in the form of short statements. These were obtained from both memory and from a search through the printing literature. "By editing this material, a list of 120 statements was prepared, expressive of attitudes covering, as far as possible, all graduations from the negative pole of the scale to the positive (11-21)."

"These 120 statements were judged by instructors of printing, graduate printing students, and the directors of the University Presses throughout the United States (thirty persons in all) The subjects were asked to assign a relative value to each statement from a nine-division scale ranging from favorable (one) to unfavorable (nine) (11-22)."

The scale values were determined for each of the 120 statements by calculating their mean ratings. The Q-value (measure of variability) was used to eliminate all ambiguous questions.

"A final list of twenty-nine statements of opinion was selected for the experimental scale. The selection was made from the original list of 120 statements with consideration of the criterion of ambiguity of the scale-values and by inspection of the statements. Four statements were selected from each scale-value so that they constituted a more or less uniformly graduated series (11-28)."

The experimental scale was field-tested among printing craftsmen in Fresno, California, to ascertain its reliability. Melvin found, by using the split-half method, that the reliability of the scale was .87. He assumed, with limitations, that the scale was valid because various studies have found that a judge's opinion does not contaminate his judgmental discrimination.

After the field-testing, Melvin used the criterion of irrelevance to eliminate any statements which proved to have a large variance. After this procedure twenty-five statements were left in the final scale.

CHAPTER II

METHODOLOGY

Description of the High Schools Used in the Study

Because of the great number of high schools teaching printing in the United States, no attempt was made to randomly select the high schools used in this field experiment. However, two high-schools in the Chicago area, which seemed to have rather extensive printing curriculums, were selected as being fairly typical of high-schools with modern printing curriculums. The two schools chosen were Willowbrook Community High School and Lane Technical High School.

Willowbrook Community High School is a four-year comprehensive high school which opened in September of 1959. It has a modern, spacious physical plant and campus of 143 acres. Willowbrook had an enrollment of approximately 3,250 students for the school year 1964-65. It is accredited by the North Central Association of Secondary Schools and Colleges and by the University of Illinois.

Willowbrook serves the communities of Villa Park, Addison, York Center, and parts of Elmhurst and Lombard. These are largely residential-suburban communities with some light industry and are located about 20 miles west of Chicago.

Willowbrook offers a full program of courses in science, mathematics, foreign language, social studies, art, business, home economics, industrial arts, music and physical education. Students are required to arrange their courses in certain major-minor sequences and must pass four years of English, two years of social studies, one year of mathematics, and one of science in order to graduate.

Lane Technical High School is one of the largest schools in the United States in both physical size and student enrollment. Lane is located on a 30-acre campus at the corner of Western Avenue and Addison Street in Chicago. More than 5000 boys of all races, national origins, and creeds make up its cosmopolitan student body. The faculty numbers 250, approximately two-thirds of whom are male.

Lane's courses of study are especially designed for boys who want to pursue engineering, scientific research, or related technical areas in college. However, a surprising number of Lane's graduates enter pre-professional or liberal arts colleges, and Lane almost always has representatives at the service academies. About 85 percent of Lane's graduates continue their education with most of them attending degree-granting institutions. Lane is fully accredited by the North Central Association of Colleges and Secondary Schools.

The object of the study was to administer the attitude scale and corresponding questionnaire attachment to all printing

students in both schools who had at least one previous course in printing. Control groups were also set up in each school. As it turned out the author was not able to administer the scale to all printing students in both schools due to such things as absences and conflicts in time.

Development of the Questionnaire Attachments

After it was decided to use Melvin's scale (shown in Appendix A) to measure student attitudes toward the printing industry, the problem of experimental design became important. It was decided that questionnaire attachments would be needed for both the experimental groups (printing students) and the control groups (non-printing students).

A questionnaire attachment for the control groups was designed to catch those students who had previous contact with printing (shown in Appendix B). Various questions were devised with the purpose of "weeding out" from the control group all those who had: (1) taken or were taking a course in printing; (2) been previously employed or were now employed in the printing industry; (3) or had a father, any close relatives or friends of the family connected with printing.

A questionnaire attachment was also used for the experimental groups (shown in Appendix C). Its primary purpose was to supply the author with demographic data which could be related to the attitudes of these groups. He was interested in comparing the

attitudes of printing students with: (1) year in school; (2) amount of academic training in printing; (3) whether or not the student had ever worked in the printing industry; (4) whether or not the student's environmental background exposed him to printing; (5) plans after graduation; (6) the reason the student is now taking printing; (7) and their stated opinion of how well printing courses compared with their expectations before taking printing.

After these questions were formulated, they were put to the rigorous tests of revision, pre-testing, and editing.

Selltiz, Jahoda, Deutsch, and Cook describe the process of revision in the following way:

In the process of revision, it is invaluable to supplement one's own efforts by the critical reactions of individuals who are familiar with questionnaire construction and with the type of problem at hand. As far as possible, the experts should represent different social orientations. Few social research questionnaires will fail to benefit from forthright criticism by persons with different values and a different social outlook. In addition, the questionnaire should be scrutinized for technical defects that may exist quite apart from biases and blind spots due to personal values. (20-550)

In light of this the author presented to various "experts" and laymen alike all of the questions used in both questionnaire attachments. Several constructive criticisms were received at this stage of questionnaire development.

Selltiz, Jahoda, Deutsch, and Cook emphasize the importance of the pretest by stating:

The pretest is a try-out of the questionnaire to see how it works and whether changes are necessary before

the start of the full scale study. The pretest provides a means of catching and solving unforeseen problems in the administration of the questionnaire, such as the phrasing and sequence of the questions, or its length. It may also indicate the need for additional questions or the elimination of others. (20-550)

The questionnaire attachments were pretested by personal interview. The control group questionnaire attachment was pretested on various non-printing students while the experimental group questionnaire attachment was pretested on several printing students and printing instructors. The results of these pretests were helpful for they supplied the author with such information as: (1) the time required to administer the scale and questionnaire attachment; (2) the recognition of the need for clarifying statements; (3) and information regarding the inadequacy of certain questions.

After this was done, the questionnaire was ready for use. All that remained was the final editing to ensure that every element was adequate: " . . . the content, form, and sequence of questions; the spacing, arrangement, and appearance of the material; and the spelling out in detail of procedures for using the questionnaire," (20-551) were checked a final time. A format was developed and the questionnaire attachments were printed.

Administration of the Scale to the Sample

In both schools the scale was administered to a control group and an experimental group. No attempt was made to equate

these groups in any way except by sex. In other words, only boys were used in the control groups because there weren't any girl printing students.

The experimental group at Willowbrook contained all those who were taking printing, except beginning printing students. Perfect returns were not obtained because several students were absent on the day the scale was administered.

The experimental group at Lane consisted of all students, except beginning printing students, who had printing between 1:00 and 2:00 p.m. on Friday. This rather restrictive limitation was necessary because of the large number of printing students at Lane and because of time restrictions imposed by the school administration.

The control group at Willowbrook consisted of an upperclass male section in physical education while the control group at Lane consisted of a large study hall of upperclass male students.

Table 1 shows the number of responses obtained from all four groups.

Table 1. Number of Responses

Experimental groups N*		Control groups N**
Willowbrook	58	31
Lane	57	81
Total	115	112
* Printing students		
** Non-printing students		

The final step before the data was statistically analyzed was to determine how many respondents from the control groups had previous contact with printing. Table 2 shows the number of respondents in the control groups who indicated contact with printing.

Table 2. Number of Respondents in Control Groups who Indicated Contact with Printing

	Contact N	No contact N
Willowbrook	13	18
Lane	28	53
Total	41	71

The students in the control groups who indicated contact with printing were then eliminated from the sample. This reduced the control group sample sizes to 18 for Willowbrook and 53 for Lane.

CHAPTER III

RESULTS

Equivalence of the Two Schools

Before considering the results, the author believes that it would be beneficial if he considered the matter of equivalence between the two schools. Obviously, the data from the two schools cannot be combined to make the sample size larger. This is true because of the number of variables inherent in all social institutions, in this case the schools. However, the author was interested in ascertaining how the printing students' responses at Lane compared to the printing students' responses at Willowbrook. If it were found that these groups of printing students differed to any great extent, it would emphasize the fact that the results of the two schools should be handled as unique sets of data. To do this Chi-Square tests were made between the two schools on all seven questions contained on the printing students' questionnaire attachment. The results of this are indicated in Table 3.

Although only one comparison proved to be significant beyond the .05 level, (which the author accepts as an adequate level of significance) the reader can see that the differences between the two groups of printing students were marked. The differences between the responses of the two groups are not therefore chance differences

but real differences. This demands that the results of the two schools be separated in all subsequent presentation of data.

Table 3. Chi-Square Tests Between Lane and Willowbrook Students on the Seven Demographic Questions

Attitude as related to:	Levels of significance
Year in school	.20
Amount of printing had in school	.01
Expected plans after graduation	.30
Previous employment in printing	.20
Environmental connections with printing	.30
Reasons for taking printing	.20
How well student liked printing	.10

Differentiation Between Control and Experimental Groups

Perhaps the paramount consideration of this study could be phrased as this question, "Does the Malvin Scale differentiate the printing student from the non-printing student?" One of the original suppositions stated the expectation that printing students would have more favorable attitudes toward the printing industry than non-printing students. If this could be demonstrated, it would show that the scale was measuring something. In another sense it would show that the scale was valid in an educational setting. Also, it would be expected that the experimental groups (printing students) would have smaller standard deviations because they are more homogeneous groups. The more a person is involved in something the greater will be his stability of response (6).

Table 4 indicates the mean scale values and the standard deviations for the control and the experimental groups.

Table 4. Number, Means, and Standard Deviations of Experimental and Control Groups

School	Experimental groups			Control groups		
	N	\bar{X}	s	N	\bar{X}	s
Willowbrook	58	3.7	.19	18	4.4	.37
Lane	57	3.8	.20	53	4.1	.47

* The lower the mean (\bar{X}) the more favorable the attitudes.

Fisher's t-test was used to test the supposition that printing students would have less variability in their responses than non-printing students. At both schools the difference was found significant at beyond the .05 level.

The t-test was also used to determine if a significant difference existed between the experimental groups and the control groups. A significant difference (beyond the .01 level) was found between Willowbrook's experimental and control groups. A significant difference (beyond the .05 level) was found between Lane's experimental and control groups.

Thus it can be assumed that the Melvin Scale does differentiate the printing student from the non-printing student. The printing student has a significantly more favorable attitude toward the printing industry than the non-printing student. A look at the

literature reveals several studies that had similar results, although in different academic fields. Vickerstaff found that agriculture pupils had more favorable attitudes toward agriculture than did pupils in general (26), and Richey found that students expecting to teach were more inclined to support restrictions put on teachers than students who were not expecting to teach (18).

It should be emphasized that, after it was determined that the Melvin Scale did differentiate the printing from the non-printing student, all subsequent handlings of data concern only the experimental groups (printing students).

Attitudes as Related to Year in School

It appears that no relationship exists between year in school and the attitudes of printing students toward the printing industry. Other empirical research in this area has also shown that year in school is of minimal importance as a causal agent in attitude formation (13, 14). Table 5 indicates that year in school is not related to attitudes of printing students toward the printing industry.

Table 5. Attitudes as Related to Year in School

School	Year in school	N	X
Willowbrook	Freshman	0	---
	Sophomore	18	3.9
	Junior	13	3.6
	Senior	27	3.8
Lane	Freshman	0	---
	Sophomore	21	3.7
	Junior	20	3.9
	Senior	16	3.7

Attitudes as Related to the Amount of Academic Training in Printing

Before the study was undertaken, the author assumed academic training in printing was positively related to the students' attitudes toward printing. This hypothesis was based on the assumption that students with poor attitudes toward printing would tend to drop out of printing courses early in their training, and those with favorable attitudes would be inclined to continue in printing. The results were in firm contradiction of this original expectation. The data in Table 6 indicates that there is no relationship whatsoever between number of semesters printing students have taken in school and the printing students' attitudes toward the printing industry.

Table 6. Attitudes as Related to the Amount of Printing Had in School

School	Semesters of printing	N	\bar{X}
Willowbrook	1	32	3.7
	2	3	3.8
	3	11	3.8
	4	0	---
	5	2	4.2
	6	4	3.7
	7	1	3.1
	8	5	3.7
Lane	1	26	3.8
	2	14	3.9
	3	10	3.7
	4	3	3.9
	5	4	3.7
	6	0	---
	7	0	---
	8	0	---

Attitudes as Related to Expected Plans after Graduation

One of the original suppositions was that the printing students who planned on entering the printing industry after graduation would have more favorable attitudes than those who did not plan to enter the printing industry. Were those, who either planned to: (1) go to work in the printing industry; (2) go to college and study printing; (3) or go to trade school and study printing, the ones with the more favorable attitudes toward the printing industry? In other words, were the attitudes of these groups significantly higher than the attitudes of the groups who indicated they would:

(1) go to work in a vocation other than printing; (2) go to college and study something other than printing; (3) or decide later because of indefinite plans?

The results obtained here are again contradictory. At Willowbrook no relationship was found between expected plans after graduation and attitudes of the printing students. At Lane, however, a highly significant relationship was found between these variables. The groups who planned to stay in printing were compared to the groups who planned to leave printing using the t-test. The difference was significant at beyond the .01 level in the positive direction. Table 7 illustrates this relationship.

Table 7. Attitudes as Related to Expected Plans after Graduation

Expectation	Willowbrook		Lane	
	N	\bar{X}	N	\bar{X}
Go to work in the printing industry	10	4.0	11	3.6
Go to college and study printing	9	3.5	6	3.6
Go to trade school and study printing	8	3.6	3	3.6
Go to work in a vocation other than printing	7	3.7	1	4.3
Go to college and study something other than printing	7	3.8	23	3.9
Undecided or other	17	3.8	13	3.9

Attitudes as Related to Employment in the Printing Industry

A possible factor which could influence the printing students' attitudes toward the printing industry is whether or not

the students were actually employed in the printing industry. The returns obtained from this study were too small to confirm or refute this assumption. Since there were only seven students who indicated they had ever worked in the printing trade, the author feels obligated not to overemphasize the findings. If the small sample is accepted, however, no differences are apparent between the attitudes of the working student and the attitudes of the non-working student. This seems to be in harmony with what Bateman found in his study on working and non-working high school students (1). He concluded that the attitudes of working and non-working high school students do not differ any more than anyone would expect them to differ by chance alone. Table 8 supports these conclusions.

Table 8. Attitudes as Related to Employment
in the Printing Industry

Employed or not employed	Willowbrook		Lane	
	N	\bar{X}	N	\bar{X}
Have been employed	5	3.5	2	3.9
Have not been employed	53	3.7	55	3.8

Attitudes as Related to Father, any Close Relatives or Friends of the
of the Family Connected with Printing

Another factor that one would expect to influence a student's attitudes toward a certain vocation would be whether or not his father was employed in that vocation. Research has been done in this

area with results tending to indicate that the father's vocation does not influence the student's attitudes toward that vocation. Switzer has found that parental attitudes are not a factor in vocational choice as such, but the magnitude of the difference between attitudes of the parents were predictive of occupational choice (22). Dyer concluded that "Neither parents nor children of white collar workers are desirous of the children following the father's occupation" (5-206).

The findings of this study confirm the results obtained by Switzer and by Dyer. It was found that no difference in attitudes existed between students whose fathers, relatives or friends were printers and students who had not any environmental contacts with the printing industry. These results are depicted in Table 9.

Table 9. Attitudes as Related to Father, Close Relatives, or Friends of the Family Connected with Printing

Connected or not with Printing	Willowbrook		Lane	
	N	\bar{X}	N	\bar{X}
Connected with printing	24	3.7	18	3.7
Not connected with printing	35	3.7	39	3.8

Attitudes as Related to Reasons for Taking Printing

The predominant reason for the inclusion of this variable in this study was to compare the attitudes of students who chose

printing as an academic pursuit because they were interested in printing as a career to the attitudes of the students who were taking printing for various other reasons. The author was interested in determining whether the students who intended to enter the vocation of printing had more favorable attitudes toward the printing industry than the students who did not intend to enter the printing vocation.

Vickerstaff, in his study concerning the attitudes of high school students toward agriculture, concluded that students intending to farm have more favorable attitudes toward agriculture than those who do not intend to farm (26).

By comparing the responses of those indicating an interest in printing as a career with those who indicated: (1) that they had no choice; (2) that the course was recommended by testing; (3) that the course was recommended by a guidance counselor; (4) that the course was recommended by an adviser; (5) that they were influenced by family or friends; (6) or that they were undecided or other, the results of this study are again contradictory. At Willowbrook no difference was found, while at Lane the difference between the two groups was significant beyond the .05 level. These results are presented in Table 10.

Table 10. Attitudes as Related to Reasons
for Taking Printing

Reason for taking printing	Willowbrook		Lane	
	N	\bar{X}	N	\bar{X}
Interested in printing as a career	35	3.7	26	3.6
Had no choice	4	3.6	1	4.4
Course recommended by testing	0	---	0	---
Course recommended by guidance counselor	3	3.7	2	4.8
Course recommended by adviser	2	3.4	4	3.9
Influenced by family or friends	5	3.6	5	3.8
Undecided or other	9	4.1	19	3.9

Attitudes in Relation to the Comparison Between Expectancy Before
Taking Printing and Subsequent Liking of the Subject

The writer was interested in determining whether the printing student who indicated that he liked printing more than his original expectation would have more favorable attitudes toward the printing industry than the student who indicated that he liked printing less than he thought, or about as much as he thought, he would.

Again the results are contradictory. At Willowbrook, there was no apparent difference between the three groups, while at Lane the students who indicated they liked printing more than their original expectation had significantly higher attitudes than those students who indicated that they liked printing about as much as, or less than, they thought they would. This relationship is illustrated in Table 11.

Table 11. Attitudes in Relation to the Comparison Between Expectancy
Before Taking Printing and Subsequent Liking of the Subject

Subsequent liking of printing	Willowbrook		Lane	
	N	\bar{X}	N	\bar{X}
Liked it less than they thought	3	3.7	0	---
Liked it about as much as they thought	14	3.7	8	4.1
Liked it more than they thought	41	3.8	49	3.8

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The paramount reason for undertaking this study was to ascertain whether or not the Melvin Scale, which was designed to measure attitudes toward the printing industry, would differentiate between the printing student and the non-printing student. If this could be verified, the writer believes that the Melvin Scale could be applied to an educational setting. Another reason for engaging in this study was to determine some of the differences between printing students with more favorable attitudes and printing students with less favorable attitudes. Still another purpose was to see whether attitudes toward the printing industry were significantly related to the reasons that students gave for choosing printing as academic pursuits. The final objective was to determine whether attitudes toward the printing industry were significantly related to various other demographic data.

The writer briefly summarized Thurstone's application of the psychophysical method of equal-appearing intervals to attitude measurement and then subsequently indicated how Melvin employed Thurstone's method in constructing his attitude scale.

The next major division of the paper (methodology) consisted of three sections. The first was a description of the

high schools used in the study. The second was comprised of an explanation concerning the development of the questionnaire attachments, and the third was composed of a description concerning the administration of the scale to the sample.

The two schools that participated in the study were Willowbrook Community High School and Lane Technical High School. Both schools are in the Chicago area and both have rather extensive printing curriculums.

The Melvin Attitude Scale (shown in Appendix A) and a corresponding questionnaire attachment (shown in Appendixes B and C) were administered to a control group of non-printing students and an experimental group of printing students in both schools. Various screening questions were incorporated into the control group questionnaire attachment which allowed the experimenter to eliminate all students in the control groups who had previous contact with printing.

Before the results were considered, the author determined the equivalence between the responses of the two schools. It was found that, although only one of the demographic questions differed significantly between the two schools, there was a rather marked difference between the responses of students from the two schools. It was therefore decided, that in all subsequent handlings of data, to consider the schools as distinct entities and treat them separately.

The results of this investigation indicated that the Melvin Scale did indeed discriminate between the printing students' attitudes and the non-printing students' attitudes toward the printing industry. The t-test was used to determine significance between the experimental and control groups at both schools. The difference between the control and experimental groups was found to be significant at beyond the .01 level at Willowbrook and slightly above the .01 level at Lane. In both cases the direction was toward more favorable attitudes for the experimental group (printing students).

Other findings showed that: (1) printing students' attitudes toward the printing industry do not differ when the criterion of year in school is used; (2) the attitudes of printing students are not a result of the amount of academic training a student has had in printing; (3) there was no apparent relationship between attitudes and expected plans after graduation at Willowbrook, and those Lane students expecting to stay within the area of printing after they graduate had more favorable attitudes toward the printing industry than those students who expected to leave the area of printing after they graduate; (4) those printing students who had worked in the printing industry had similar attitudes to those who had not worked in the printing industry; (5) those students whose fathers or friends of the family worked in the printing industry had similar attitudes to those students whose fathers did not; (6) the reason for taking

printing was not a causal factor in the attitudes of those printing students at Willowbrook, and those Lane students who took printing because they were interested in printing as a career had significantly better attitudes than those students who were taking printing for various other reasons; (7) and at Willowbrook no apparent relationship existed between attitudes and the comparison between expectancy of liking printing before taking printing and the subsequent liking of the subject, and those Lane students who liked printing more than they thought they would had more favorable attitudes toward the printing industry than those students who indicated they liked printing as much as or less than they originally expected.

Conclusions

It can be concluded that the Melvin Scale does discriminate between the printing and the non-printing student. The printing students at both schools had significantly more favorable attitudes than the non-printing students.

Further conclusions that seem warranted are: (1) attitudes are not a function of year in school or the amount of academic training in printing taken by the student; (2) attitudes are not related to whether a student's father, relatives, or family friends work in the printing industry; (3) and having worked in the printing industry seems not to influence a student's attitudes toward the printing industry.

It also can be surmised that the following three relationships are, in part, a function of the individual school environment: (1) attitudes as related to expected plans after graduation; (2) attitudes as related to reasons for taking printing; (3) and attitudes as related to the comparison between original expectation of liking printing and subsequent liking of the subject. At Lane, more favorable attitudes were found for those students who planned to stay in printing, for those students who took printing because they were interested in printing as a career, and for those students who liked printing more than they had originally anticipated. These relationships were not found at Willowbrook.

It should be emphasized that these findings can only be applied to the small sample of students who participated in this experiment. Other schools or even other students within these two schools could yield substantially different results. The author believes, however, that after more studies are undertaken, it will be shown that the Melvin Scale will differentiate between the printing and the non-printing student.

It seems a logical deduction that on the basis of these findings, the individual school and perhaps the individual printing instructor have a great deal of influence upon the formulation of a student's attitude toward the printing industry. This assumption is based upon the large differences found between the two schools on several of the responses. Several studies have shown the

importance of the instructor in the formation of a student's attitudes (3,4,7,10,17,24).

If after extensive empirical research, it could be shown that the Melvin Scale will validly depict the students' real attitudes, the instructor of printing could use this tool as a gauge for class attitudes toward the printing industry. If they were low, remedial measures could be undertaken. Attitudes of high school students could probably be altered, for, as Okaji has shown, adolescents' attitudes are quite indefinite and changeable (15).

Recommendations for Further Study

An extensive amount of further study needs to be undertaken before the results of this investigation can be generalized to printing students as a whole. Various studies would possibly reveal varying results. The author recommends that the scale and questionnaire attachments be administered in different parts of the country to high schools in various socio-economic areas.

If the Melvin Scale subsequently proves to be valid, there are several possible applications for its use in an educational setting. It can be used to ascertain change if an instructor varies his method of teaching. It can also be used to see how printing students' attitudes change as a result of age, or year in school. A further study that may prove rewarding would be a correlation between students' attitudes and their academic performances. The author

makes no pretense that these are the only applications for Melvin's scale in an educational setting. For with a creative and scientific spirit an investigator could, in all likelihood, find numerous applications for its use in an educational framework.

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APPENDIX

APPENDIX A

MELVIN PRINTING ATTITUDE SCALE

PRINTING & JOURNALISM DEPARTMENT
SOUTH DAKOTA STATE UNIVERSITY
BROOKINGS, SOUTH DAKOTA

Check () every statement below with which you agree (leave the others blank). Interpret the statements in accordance with your own experiences.

- ___ 1. Printers spend a lot of time on their feet.
- ___ 2. Many printers aren't qualified for their jobs.
- ___ 3. Printers have high job security.
- ___ 4. Printers need to be in good physical condition.
- ___ 5. Printing plant managers generally have bad attitudes.
- ___ 6. Printers have a good chance for advancement within their industry.
- ___ 7. Printing plants are generally unhealthy places in which to work.
- ___ 8. Most printers are well paid instead of being under paid.
- ___ 9. The printing industry depends upon other commercial products.
- ___ 10. Printers are highly skilled craftsmen.
- ___ 11. Printing plants are generally well equipped.
- ___ 12. Printers should fear new processes.

- ___13. Associating with fellow workers is necessary for a printer to be happy.
- ___14. Printing plant supervisors are generally fair.
- ___15. To some, printing is more or less boring.
- ___16. Printers need to be artistic.
- ___17. Printing forces other industries to meet higher standards.
- ___18. Many printers welcome changes in the printing industry.
- ___19. Young printers are paid more than they deserve.
- ___20. Some printers are afraid to stand up for their rights.
- ___21. Printing shops are generally well maintained.
- ___22. There are too many unqualified newcomers in the printing industry.
- ___23. Printing is becoming too technical for worker satisfaction.
- ___24. The apprenticeship time is too long in the printing industry.
- ___25. Printers will generally go out of their way to help their fellow workers.

APPENDIX B

VOCATIONAL INFORMATION FORM B

1. What year in high school are you?

____ Fr. ____ Soph. ____ Jr. ____ Sr.

2. Have you ever taken or are you now taking a course in printing?

____ Yes ____ No

3. Have you ever been employed or are you now employed in the printing industry? ____ Yes ____ No

4. Are your father, any close relatives, or friends of the family connected with printing? ____ Yes ____ No

5. List any vocational shop courses that you have had.

APPENDIX C

VOCATIONAL INFORMATION FORM A

1. What year in high school are you?

____ Fr. ____ Soph. ____ Jr. ____ Sr.

2. How much printing in high school have you had? (include the printing course that you are now taking)

____ 1 Semester ____ 2 Semesters ____ 3 Semesters ____ 4 Semesters
____ 5 Semesters ____ 6 Semesters ____ 7 Semesters ____ 8 Semesters

3. Have you ever been employed or are you now employed in the printing industry? ____ Yes ____ No

4. After you graduate from high school what are your plans?

(Choose only one)

- ____ Go to work in the printing industry
- ____ Go to college and study printing
- ____ Go to trade school and study printing
- ____ Go to work in a vocation other than printing
- ____ Go to college and study something other than printing
- ____ Undecided or other

5. Are your father, any close relatives, or friends of the family connected with printing? ____ Yes ____ No

6. Why are you taking high school printing courses? (Choose only one)

- ☐ Interested in printing as a career
- ☐ Had no choice
- ☐ Course recommended by testing
- ☐ Course recommended by guidance counselor
- ☐ Course recommended by adviser
- ☐ Influenced by family or parents
- ☐ Undecided or other

7. After taking printing would you say that you:

- ☐ Liked it less than you thought
- ☐ Liked it about as much as you thought
- ☐ Liked it more than you thought